



# Energy Smart Services

solutions & incentives for business



## Professional Development Training Series

# FUNDAMENTALS OF BUILDING COMMISSIONING

**Three and one-half day workshop to be held June 7-10th.  
Seattle Washington**

Seattle City Light, in partnership with Puget Sound Energy and the Electric League of the Pacific Northwest, is offering a three and one-half day workshop to bring you the latest technical information on the commissioning of mechanical systems in existing and new facilities. This training will cover the commissioning process from both the system and component levels to help you achieve optimal operation of your facility.

### Who should attend?

This training is designed for developers, commissioning agents, facility managers, design engineers, building engineers, HVAC technicians, sustainable building professionals, utility energy management personnel, control contractors and anyone involved in the development and operation of commercial and industrial facilities.

### Instructors

J. Jay Santos, P.E., Principal, Facility Dynamics Engineering, Columbia, MD  
Timothy M. Scruby, P.E., Facility Dynamics Engineering, Afton, VA

### Workshop Information

June 7-10th, 2004 from 8:30-4:30, except 8:30-12:30 on June 10th.  
Marriott Residence Inn  
800 Fairview Ave. N.  
Seattle, WA 98109

### Registration Information

Registration fee: \$750 until May 26th (includes continental breakfast, lunch, break refreshments, all workshop materials and parking).

\$850 after May 26th.

Registration deadline: Wednesday, June 2nd. Seating is limited, please register early.

To register, fill out the attached registration form and return to the Electric League of the Pacific Northwest. For more information, call the Electric League at **(425) 646-4727**, or visit their web site at **www.electricleague.net**.

Letters of Professional Development will be provided upon course completion.

See reverse for course outline and instructor bios.



**Seattle  
City Light**





## COURSE OUTLINE:

### Day 1: Introduction to the Commissioning Process

- Systems to be commissioned
- Use of direct digital control and energy management systems in commissioning
- Device level testing

### Day 2: Component Level Testing

- Terminal Units
- Variable air volume boxes

Air Handling Units (begin, see Day 3)

### Day 3: Air Handling Units (continued)

- Fan subsystems (supply/return, vsd) and mixed air section (heating/cooling coils, humidification)
- Safeties and interlocks-specialty equipment/control performance
- Instrumentation and use of trend logs

Hydronic Systems (begin, see Day 4)

### Day 4: Hydronic Systems (continued)

- Primary Equipment
- Direct digital control systems



## INSTRUCTOR BIOGRAPHIES:

J. Jay Santos, P.E.

In 1989 Mr. Santos co-founded Facility Dynamics Engineering and functions as Principal and Senior Controls Engineer. He teaches HVAC controls courses for the University of Wisconsin, North Carolina State, and the Energy Resource Station in Iowa. He has developed an Advanced Commissioning Course focused on functionally testing HVAC systems and controls, and a "hands-on" commissioning course that he teaches in Iowa and at Portland Energy Conservation, Inc. (PECI). Jay is a member of the HVAC Engineering Editorial Advisory Board and is contributing author to a new column called "Control Freaks".

Timothy M. Scruby, P.E.

Tim is a senior controls, commissioning and mechanical engineer. Tim received a bachelor's degree in mechanical engineering from Virginia Tech in 1979. He has 23 years experience, 8 with Facility Dynamics Engineering, and 15 with other engineering firms. Tim is a registered professional engineer in VA, NC, MD, MA, CA, AZ, OH, WI, MO, WV, and GA. He has broad experience ranging from laboratories, museums and archival storage facilities to industrial HVAC, boiler and process work. He is actively working on multiple projects for a number of clients, including the Colonial Williamsburg Foundation, The University of Virginia, Harvard, Saint Mary's College, Virginia Department of Mental Health, Wake Forest University, Medical College of Virginia, and others. Tim co-authored and instructs a course in advanced HVAC System Commissioning.





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**Fundamentals of Building Commissioning****REGISTRATION FORM**

- Please complete this form and mail or fax to the Electric League of the Pacific Northwest.
- An email confirmation will be sent upon receipt of completed registration.

**ATTENDEE INFORMATION** - one form per person please

(Mr., Ms., Dr.) First Name \_\_\_\_\_ Last Name \_\_\_\_\_

Nickname (For Badge) \_\_\_\_\_ Title \_\_\_\_\_

Company \_\_\_\_\_

Address \_\_\_\_\_

City/State/Zip \_\_\_\_\_ Country \_\_\_\_\_

Phone \_\_\_\_\_ Fax \_\_\_\_\_ Email Address \_\_\_\_\_

Please indicate any special dietary (vegetarian or other) needs: \_\_\_\_\_

**REGISTRATION DEADLINE: Wednesday, June 2nd, 2004****REGISTRATION FEE****\$750.00** per person until May 26th (includes continental breakfast, lunch, break refreshments, all workshop materials and parking).**\$850.00** if received after May 26<sup>th</sup>.

Sessions run from 8:30 AM until 4:30 PM Monday through Wednesday, June 7-9, and 8:30 AM-12:30 PM on June 10, 2004.

\_\_\_\_ Please register me for the *Fundamentals of Building Commissioning* workshop to be held**June 7-10, 2004****Marriott Residence Inn****800 Fairview Ave North****Seattle, Washington**

\_\_\_\_ Yes, I would like to receive a Letter of Professional Development upon completion of the 3 ½ day workshop.

**PAYMENT INFORMATION: Payment may be made by check or credit card.**

Please fill out and send a copy of this registration form along with payment. Make check payable and send to:

The Electric League of the Pacific Northwest

Phone: (425) 646-4727

1500 114<sup>th</sup> Av. SE Suite 105

Fax: (425) 646-4729

Bellevue, WA 98004

<http://www.electricleague.net>If paying by credit card, please indicate type of card:  Visa  Mastercard Expires: \_\_\_\_/\_\_\_\_/\_\_\_\_Number:                 3 digit VIN # from back of card: \_\_\_\_\_Cancellation policy: Refunds will be given for cancellations received up until May 31<sup>st</sup>.

Note: This form is not a hotel reservation form. For hotel reservations, contact the Marriott directly at (206) 624-6000. A listing of other area hotels can be provided upon request.